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ABSTRACT

Four conceptual competencies were devised and deemed necessary for effective teaching. Then, a number of conclusions were drawn: a) with new competencies being stated, new forms of training must be established; b) training which occurs at the undergraduate level can be made more effective only if the statement of competencies is more realistic; c) new teacher education institutions must be established at the postgraduate level if effective teacher are to be produced; and d) with more effective teacher education programs to be established a greater commitment of funds on a level with medical education must be made. To test the reasonableness of the above conclusions, a postbaccalaureate teacher education program was established under a Title III grant to Central Susquehanna Intermediate Unit #16. Specifically, the objective of the project was to determine whether a program which assumed effective undergraduate preparation could improve the effectiveness of teaching by focusing on the four objectives specified at postgraduate training and on a financial level thought to be necessary for achieving the desired ends. The teacher education program was organized over a 3-year period. The results reported in this paper are limited to the testing of objectives one and two: a) the ability of teachers to bring their teaching behavior under control and b) the ability to generate and test hypotheses associated with learner attention. (JA)

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A Preliminary Report of the Competency Based Inservice Training Program Patterned on the Moore Model of Teacher Education

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A Preliminary Report of the Competency Based Inservice Training Program Patterned on the Moore Model of Teacher Education

J. William Moore

At a time when the shortage of effective teachers has reached almost crisis proportions, it is appalling to hear some educators state that the long heralded teacher shortage is now over and that our students, particularly our best ones, should be dissuaded from going into teaching. Unfortunately, they have equated the number of people licensed to teach with the number of available effective teachers.

The fact that large numbers of children cannot perform academic pursuits at a satisfactory level fortunately can no longer be attributed to a shortage of certified personnel. Rather, it must be accepted as hard evidence that present certification practices provide little assurance that the certified professional possesses the necessary competencies for effective teaching. The problem seems to be related more to a lack of competency in terms of process-type behaviors rather than to an adequate knowledge of the subject matter certified professionals are hoping to communicate.

A more recent effort to improve the effectiveness of teaching has been to specify teacher competencies as a basis for teacher educational programs (Weber & Cooper, 1971). However, in spite of a change in terminology, there is reason to believe that the effort has produced more rhetoric than results.

While a number of reasons may be given for this, such as failing to establish minimal standards for the specified competencies, a more probable explanation is that they have not differentiated between enabling objectives and terminal teaching behaviors. Evidence that this is happening can be

gained by examining what seems to be the endless lists of competencies which are being generated by educators. Pennsylvania's list of generic teaching competencies is a classic example of one such undifferentiated list (Pa. Dept. of Education, 1973). While some compilations may be valid, many are inadequate because they fail to differentiate between enabling and terminal behaviors. The consequences of failing to differentiate between enabling and terminal behaviors are at least two in number. First, the assessment of terminal behavior assumes the assessment of the interaction of enabling objectives. Thus, where assessment is limited to individual enabling behaviors rather than the assessment of terminal behaviors, the critical interactions are not evaluated, thus rendering evaluation invalid. Second, attempts to list all training objectives, again as differentiated from terminal objectives, suggests that a finite set of training objectives can be specified through extending the list. If one assumes that the terminal objectives are conceptual in nature, then it is both unnecessary as well as impossible to list all the instances of behavior which could be used as a means of developing the terminal competencies. Rather, by listing terminal behaviors, which are conceptual in nature a variety of instances of enabling objectives may be used to satisfy these ends.

This is not an argument against the specification of objectives. Indeed, objectives must be specified if courses and related experiences are to be designed for utmost effectiveness and if their contribution to the overall program is to be properly evaluated. It is suggested, however, that it is not logically defensible to mix both means and ends, or in other words to combine enabling objectives and terminal objectives under the single heading of competencies.

Most studies which have attempted to specify those behaviors appropriate for effective classroom teaching have followed procedures not unlike those used by Evertson and Brophy (1973) and Peck and Veldman (1973). In these investigations an attempt was made to specify those behaviors present in the classrooms of teachers judged to be effective. While these investigations have contributed significantly to the specification of effective teaching behaviors, the approach is limited in that it does not provide a means: (a) of differentiating between enabling and terminal teaching competencies; and (b) for differentiating between what is and what should be in terms of effective teaching.

A second approach, and one thought to be more productive, is to use a rational scientific model. Under these conditions, teaching competence would be defined conceptually as the abilities to generate and test theoretically based instructional hypotheses. Thus, the problems of: (a) assessment, where the interaction of teaching competencies is an important consideration would be resolved: and, (b) defining teaching in terms of what is, as opposed to what should be, would not be an issue.

If the logic of this approach is accepted, it follows that there are four conceptual competencies necessary and sufficient for effective teaching. They are:

1. A teacher must demonstrate, with a high degree of consistency, the ability to bring his own teaching behavior under control in a wide range of instructional conditions as opposed to coming under the control of the learners behavior. For example, the teacher must not allow the bright, personable students to dominate her attention at the expense of other less gifted students. Bringing teaching behavior under control is necessary be-

cause it establishes the upper level of the teachers' ability to observe relevant learner behavior as a basis for diagnosis.

2. A teacher must be able to generate and test productive instructional hypotheses with respect to both individual and group attending problems as opposed to relying on a limited set of instructional strategies. For example, the teacher must be able to observe and explain the nature of learner behavior being reinforced and the source of the probable reinforcer if more desirable substitute behaviors are to be stimulated and reinforced.

3. A teacher must be able to generate and test productive instructional hypotheses with respect to effective instructional presentation systems appropriate to the needs of individual learners.

4. A teacher must be able to identify and postulate solutions to problems of classroom organization as it relates to identifying and resolving individual learner problems. For example, if one assumes that a teacher has the competency needed for generating productive instructional hypotheses relative to individual learning, but is faced with thirty learners in a class five periods a day, what alternative management procedures might be considered which would maximize the possibility for implementing the most effective individualized instructional system?

If the nature of the terminal behaviors every effective teacher must have are specified, it follows that the established teacher education programs must be evaluated to determine whether, knowing the objectives, the system has the potential for producing effective teachers. An analysis of our best teacher education programs indicates that there are few established undergraduate institutions which can adequately prepare teachers to demonstrate

these competencies at a satisfactory level. Reasons for this situation include:

1. Complexity of the behaviors to be demonstrated.
2. Fixed time interval for the traditional baccalaureate degree program. Specifically, if we recognize individual differences and acknowledge the complexity of the teaching act, it follows that educational institutions are apparently compromising on the minimal levels of competence required as evidenced by their efforts to certify teachers within the limits of a four-year undergraduate program. The implicit assumptions of institutions that certify teachers following a four-year program are that there are few individual differences among those seeking teaching certificates and that the teaching process is a relatively simple one.

If effective teachers are to be prepared, undergraduate and post-graduate training, both in terms of time and expense, must be more analogous to medical education than to the soft ineffective practices of the present and that more rigorous standards associated with acceptable teaching behavior must be established and followed.

Assuming that the analysis of the problem of teacher education is correct, one can draw a number of conclusions. First, with new competencies being stated, new forms of training programs must be established. Second, training which occurs at the undergraduate program can be made more effective only if the statement of competencies is more realistic. Third, new teacher education institutions must be established at the post-graduate level if effective teachers are to be produced, and fourth, with

more effective teacher education programs to be established a greater commitment of funds on a level with medical education must be made.

To test the reasonableness of the above conclusions, a post-baccalaureate teacher education program was established under a Title III grant to Central Susquehanna Intermediate Unit #16. Specifically, the objective of the project was to determine whether a program which assumed an effective undergraduate preparation could improve the effectiveness of teaching by focusing on the four objectives specified at post-graduate training and on a financial level thought to be necessary for achieving the desired ends.

Because of the anticipated complexity of the acquisition of the four competencies specified, the teacher education program has been organized over a three-year period. The results reported in this paper are limited to the testing of hypotheses associated with objectives one and two; (1) the ability of teachers to bring their teaching behavior under control, and (2) the ability to generate and test theoretically based instructional hypotheses associated with learner attention. Further, because it was necessary to hold training times constant it was expected that there would be a wide variation level of competencies demonstrated.

Procedure

To evaluate the stated objectives, an experimental program was established by Intermediate Unit 16 which serves the 17 school districts in the Central Pennsylvania area. The project was designed to be evaluated over a three-year period. The first year was concerned with the evaluation of instructional programs associated with the first two objectives. The second year (the current year) is primarily associated with the attainment of objective 3, and the final year will be associated with evaluation of an instructional program associated with objective 4.

Participants in the experiment were restricted to those teachers who had not received permanent certification and who were employed in the area schools. A total of 56 teachers volunteered for the program. Teachers were stratified on sex, years of experience and teaching level (whether they were elementary or secondary teachers) and 16 were randomly assigned to control conditions. The remaining 40 were assigned to experimental conditions.

Experimental Methods

Because it was assumed that the nature of the instructional objectives would require an instructional system which provides for maximum flexibility in terms of feedback and modeling behavior, and because of the number of participants involved, four experimental training sessions were established, each one lasting for a period of 6 to 8 weeks. Thus 10 of the participants were trained in each group. This procedure not only made the necessary interaction between project staff and teachers possible, but also made it possible to evaluate the needs associated with over-learning, that is, with the habituation of the acquired behaviors. Three staff members participated in the project.

During the experimental period, the project staff members participated with each teacher in her classroom a minimum of two one-half days each week and conducted weekly three-hour seminars for the four teachers with whom they were working during the training session. The project staff member served in a variety of ways. First, using a specially designed instrument, they provided feedback to the teachers with respect to their success in controlling their classroom teaching behavior. Second, they assisted the teachers in generating and testing hypotheses associated with controlling their behavior. Third, they provided the teachers with feedback with respect to whether they were using a recipe, a trial and error, or a scientific approach to resolving problems associated with learner inattention. For example, if an instance of learner inattention was observed, and observed to persist, a record of teacher behavior as it related to the student's inattention was observed. If the teacher's behavior did not vary as she interacted with learner inattention, it was concluded that she was using a recipe approach. Or if the teacher behavior varied while the student behavior persisted, it was concluded that the teacher was using either a trial and error approach or an unsophisticated theoretical approach. Or if the teacher behavior was observed to change with a corresponding change in the learner's behavior, it was concluded that the teacher was using a scientific approach. When the teacher was not using an approach judged to be scientific, the specific behaviors were recorded and discussed with the teacher with explanation of the instance of learner attention being explored. Following these discussions, the resulting hypotheses were tested with new feedback being given. The project staff also assumed a modeling role whenever deemed necessary. In most cases, this took the form of generating testable hypotheses with respect to specific instances

of learner inattention.

The seminars were used for a number of purposes. First, they were used to discuss case studies of individual inattention problems observed in the experimental teachers' classrooms. Second, they were used to discuss the theoretical basis for the program and to provide for deficiencies in knowledge concerning concepts which were necessary for generating and testing instructional hypotheses (e.g., concept of reinforcement). Third, they were used for teaching simulations designed to increase the effectiveness of controlling teacher behavior and hypothesis generation (Moore, et al., 1973).

Evaluation

The primary evaluation criterion used to determine the overall effectiveness of the program for the first year was learner attention. Learner attention was used for three reasons. First, it was believed that the most convincing data with respect to the effectiveness of the program would be in terms of changes in learner behavior. Second, for comparative purposes, it was necessary to use as a dependent variable, one which could serve as a basis for making comparisons between experimental and control groups where the teachers differed markedly in subjects taught. Third, a number of studies have demonstrated a high correlation between learner attention and learner performance in an academic task (Morsh, et al., 1955; Lahaderne, 1968; Cobb, 1972).

Learner attending behavior for the E and C groups was compared at the end of the experimental year to determine the effectiveness of the program in achieving the specified objectives. Similar data were collected in October of 1973 and compared to determine the long-term retention effects. Learner attending behavior was measured by evaluators who used a specifically designed

scoring system in the classroom setting.

Other measures of the effectiveness of the program included measures of the teachers' ability to control their teaching behavior. In this case, the classroom evaluators utilized the evaluation instrument and recorded the teacher's initiated interactions with students. Following the evaluation session, teachers were asked to classify those students randomly selected for evaluation. The classification was based on a five-point scale with respect to the student's need for teacher intervention to facilitate learning. Teachers who initiated interactions with students classified as high need as frequently as they interacted with low need students were defined as being in control of their own behavior. It was assumed that any discrepancy between the observed results of these two dependent measures would provide some basis for differentiating the effects of the program in providing conditions for teachers to achieve objectives one and two.

The instrument used in collecting these data was designed by the principal investigator and the project staff and included a number of other categories used for purposes of diagnosing teacher learning problems. It was designed to be used with a randomly selected group of ten students because it was felt that attempting to observe an entire class would be unwieldy, would diminish reliability, and would not provide for optimum feedback to the teacher.

In an attempt to maximize objectivity in evaluation, independent evaluators were used. In this case, administrative staff members from the area were given a two-day training session and were used to collect the evaluation data. Evaluators were in all cases sent to school districts other than their own to conduct the evaluations and were not informed as to which teachers were experimental, and

which were control. Retention data were collected by the principal investigators because it was not feasible for the independent evaluators to give more time from their respective school districts to participate in this phase of evaluation.

For comparison purposes, only data collected during the second and third training sessions were used for purposes of analysis. This procedure was used because independent evaluators had not been trained by the time evaluation of the first group of teachers trained was required. Second the last group of teachers trained was not evaluated by the independent evaluators because of the evaluators time commitments to their respective school districts associated with the closing of school.

Results and Discussion

Posttest Results

To determine the effectiveness of the program with respect to the teachers' ability to generate instructional hypotheses, t-tests were completed comparing percentages of learner inattention for experimental and control teachers stratified on sex. Of particular interest was the difference in learner attending behavior as a function of the manner in which male and female teachers reacted to treatment. Because of the existence of a ceiling effect with regard to the dependent variable and the resulting difficulty in interpreting interactions, an analysis of variance (Winer, 1962, p. 257) was not used. The results of the analyses are presented in Table 1.

Insert Table 1 about here

As can be observed in Table 1, a significant difference was obtained for the respective comparisons. In this case, the mean percentage of inattention for the male experimental group was greater than for their control group, while the mean percentage of inattention for the female experimental group was lower than for their control group. These data provide support for the effectiveness of the inservice training for female teachers while indicating that it appears to negatively affect male teachers' teaching behavior.

While the unexpected negative effect of the inservice training program on male teachers was initially disappointing, it did serve one useful purpose. That is, it tended to counter the arguments of those who had suggested that any observed positive experimental effects were a product of the "Hawthorne" effect. One possible explanation for the negative effects of the inservice training on males may be that the random assignment of the relatively small number of male teachers resulted in some systematic differences between groups. An alternative explanation is that male teachers already had an effective system for maintaining attention, and the inservice training tended to interfere with the existing system, thus reducing its overall effectiveness.

An analysis of variance was completed in an effort to determine whether the inservice training was effective in increasing the teachers' ability to bring their own teaching behavior under control. Experimental and control teachers, stratified on sex for both teachers and students, were compared in terms of the amount of attention given to students classified as being high or low in need of teacher intervention. In this case, attention was defined as being the number of teacher initiated questions or statements directed to the student, requiring a student response. Following the classroom observation, teachers were asked to rate the students observed in terms of the

teacher's perception of that student's ability to master the concept without teacher intervention. Students assigned a 4 or 5 on the rating were considered to be high need students, those most needing teacher intervention. Students assigned a 0 or 1 were considered low need students, those needing little or no teacher assistance to acquire the concept. Only the interaction of need of student and experimental treatment was of primary interest in this comparison.

Table 2 presents the results of this analysis.

Insert Table 2 about here

As can be observed, the interaction between need of student and experimental treatment was significant ($p<.01$). Table 3 presents the mean amount of attention given by teachers to high and low need students.

Insert Table 3 about here

The Newman-Keuls posttest analysis resulted in significant mean differences ($p<.05$). An examination of the differences indicates that the experimental teachers gave a greater amount of attention to high need students than they did to low need students. Further, experimental teachers gave a greater amount of attention to high need students than did control teachers. These data clearly support the effectiveness of the inservice training in developing the teachers' ability to control their own teaching behavior.

Retention Results

One of the most important questions to be asked with respect to the

effectiveness of the inservice program was, "What were the long-term retention effects of inservice training"? Two analyses of retention data were completed paralleling the analyses of the posttest data.

In the first case, t-test analyses were completed comparing percentage of learner inattention respectively for experimental and control male and female teachers. These comparisons are presented in Table 4.

Insert Table 4 about here

It can be observed that while neither of the comparisons was statistically significant, means for both the male and female comparisons were in the direction of the experimental groups. These data would tend to suggest that the training did not have long-term retention effects. However, they pose an interesting question, "Why did the inservice training initially have a negative effect on male teachers' teaching behavior and the retention measure, while not resulting in significant differences, show both means favoring the experimental groups, and why do male teachers seem to change from more effective teaching behavior to less effective procedures?" One possible explanation may be that the long-term retention data were obtained by staff evaluators while the short-term data were collected by independent evaluators. However, because of the high inter-scorer reliability of staff and independent evaluators (.92), this explanation is not probable. A more probable explanation for this phenomenon may be as follows:

1. Male teachers initially tend to have more threatening response styles than female teachers.

2. Since the response style of the males tended to be initially more

threatening (punishing) to their students, it tended to suppress instances of learner inattention more than the females' style.

3. Because of the effectiveness of the threatening response style of males, the conceptualization of the process approach was not only not achieved as quickly as for females, but in fact, efforts to acquire it actually interfered with the existing style resulting in a temporary increase in the amount of learner inattention.

4. With the lapse in time between the initial evaluation and the retention measure, there was a deterioration in the effectiveness of the initial response style. The result was a slight decrease in learner inattention for male experimental teachers as the interfering effects of the initial response style were removed, permitting the use of alternative approaches. Because an alternative effective system for controlling inattention did not exist for control males, instances of inattention increased in classes taught by control teachers as the initial response style lost its effectiveness.

The explanation is substantiated by the fact that while the mean of the male control group was initially much lower than all other groups (3.90) on the post measure, it was greater than other groups (24.86) on the retention measure.

Consistent with the explanations is the observation that females in the experimental group, on the initial evaluation, were more effective in controlling learner attending behavior than were the female control teachers. This observation suggests that their initial, less threatening, response style was also less effective and was therefore less interfering. The result was an earlier acquisition of an alternative process.

To determine the effectiveness of inservice training on the ability of

the teachers to control their own teaching behavior in terms of long-term retention, an analysis of variance was completed. Again the amount of attention given by experimental and control teachers to high and low need students served as a basis for comparison. Table 5 presents the results of the analysis.

Insert Table 5 about here

As can be observed in Table 5, the interaction between the need of students and treatment differed significantly ($p<.05$). The results of the Newman-Keuls posttest analysis are presented in Table 6.

Insert Table 6 about here

The results of this analysis indicate that experimental teachers either gave more or tended to give more attention to high need students than the control teachers did to either high or low need students. These results tend to be consistent with the results obtained in the short-term retention analysis and also provide further support for the effectiveness of the in-service training procedures as a means for both acquiring and habituating the desired behaviors.

The fact that the experimental treatment effect related to maintaining control of teaching behavior tended to be retained, while the experimental effects with respect to modifying the non-attending behavior of learners was not, suggests that those experimental procedures associated with developing the teachers' ability to generate and test productive instructional hypotheses

were less effective than those procedures associated with developing the teachers' ability to bring their own teaching behavior under control. An alternative explanation may be that because of the short period of time, i.e., one to two months, teachers had to observe individual learner characteristics,they were less likely to be able to generate productive hypotheses even though they possessed a process for hypothesis generation and testing.

Post Hoc Analysis

A number of additional interesting questions were asked concerning teaching behavior associated with this research. First, "Do female teachers pay more attention to high need students than do male teachers"? As can be observed in Table 2, the interaction between sex of the teacher and need of student was significant ($F = 4.75$, $df = 1, 142$, $p < .05$). Table 7 presents relevant means and the results of the Newman-Keuls posttest analysis.

Insert Table 7 about here

This analysis indicates that independent of training, female teachers do interact with high need students more than with low need students, and tend to interact more with high need students than do male teachers. Male teachers either do not differentiate in their interactions with students or tend to interact more with low need students.

Second, "Are elementary or secondary teachers more effective teachers as measured by the amount of teacher interaction (attention given) with high need students?" As can be observed in Table 5, a significant interaction ($F = 23.37$, $df = 1,207$, $p < .01$) between levels of teaching, i.e., elementary or secondary, and need of student was obtained. The Newman-Keuls posttest analysis indicated that (a) elementary teachers interact with all children more than secondary and (b) that elementary teachers interact more with high need students than they do with low need while secondary teachers tend to interact more with low need students. These data are presented in Table 8.

Insert Table 8 about here

Finally, the question may be asked, "Are the teaching behaviors of experienced or inexperienced teachers more easily manipulated?"

An analysis of variance was used as a basis for comparing experimental and control teachers stratified on zero and one year of experience and compared in terms of the amount of attention given to students. The results of the analysis indicated a significant ($F = 5.09$, $df = 1,172$, $p < .05$) interaction effect of years of experience and experimental conditions. The Newman-Keuls posttest analysis results and comparisons of means are presented in Table 9.

Insert Table 9 about here

As can be observed in Table 9, the experimental teachers with zero years of experience differed significantly from all teachers with one year experience and tended to differ from control teachers with no experience. In all cases the performance of the inexperienced experimental teachers was the best. From these observations, it can be concluded inservice training of the type reflected in this investigation is maximally effective for inexperienced teachers with its effectiveness diminishing with experience. These data are consistent with the research which demonstrates the interfering effects of learned behaviors which are in competition with new behaviors being acquired.

Summary

To summarize these findings, the data provide support for the effectiveness of the inservice training in developing female teachers' ability to modify learner attending behavior. Further, there is evidence to indicate that the specific objective of controlling teaching behavior was achieved through inservice training. There is also

evidence that teachers, having learned to control their teaching behavior, tend to habituate it.

The failure of teachers who demonstrate the acquired ability to control learner inattention to habituate this ability suggests that the experimental program did not provide sufficient practice in generating and testing productive hypotheses associated with learner attention.

Further, there is evidence to suggest that beginning male teachers' teaching behavior tends to deteriorate with experience while female teachers tend to improve. This suggests that male teachers may be reinforced for the use of inflexible instructional procedures which are initially effective but which ultimately are rendered ineffective.

It would appear that beginning female teachers are reinforced less for temporary effective procedures thus increasing the probability that they are more readily responsive to productive inservice training procedures.

Further, it would appear that teaching behavior does not improve significantly with undifferentiated practice, and that inexperienced teachers are most responsive to inservice training. Finally, as a group, female and elementary teachers seem to be the most effective teachers.

More importantly, the program demonstrates a number of points:

1. A theoretically based teacher education program produces significant changes in learner behavior.

2. Teacher competencies can be specified in a form: (a) that is conceptual, and (b) which measures the necessary interaction effects.

3. Reducing teacher competencies to a small number of measurable

conceptual statements increases the feasibility of implementing an effective teacher education program which results in changes in learner behavior.

4. Teaching does not necessarily improve with practice, and that training should occur early in the experience of the teacher if it is to be maximally effective.

5. Finally, it may be concluded that competency based teacher education program objectives, which specify minimal performance levels, are achievable. However, because of the complexities of the competencies, it is unlikely that these behaviors can be acquired at an acceptable level of proficiency unless provisions are made for quality post-graduate education where time for acquiring the competence is allowed to vary and level of competence is held constant.

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Table 1

Summary of the t-test Analysis Comparing
Mean Percent of Inattention on Posttest Measure

Group	Male				Female			
	N	$\bar{X}$	σ	t	N	$\bar{X}$	σ	t
E	7	21.531	22.27	1.984*	13	11.234	8.858	-2.116**
C	3	3.896	4.950		6	23.560	12.933	

*p<.10

**p<.05

TABLE 2

Analysis of Variance - Amount of Attention Given by Teacher to High and Low Need Students - Post Measure

Source	df	MS	F	P
Treatment (T)	1	6.0186	.2130	n.s.
Time Period (TP)	1	73.4615	2.6002	n.s.
Need of Student (N)	1	170.5589	6.0371	*
Sex of Teacher (ST)	1	2.7053	.0958	n.s.
Sex of Student (SS)	1	23.0015	.8142	n.s.
T x TP x N x ST x SS	1	10.1235	.3583	n.s.
T x TP x N x ST	1	132.6098	4.6938	*
T x TP x N x SS	1	69.0462	2.4440	n.s.
T x TP x ST x SS	1	86.9781	3.0787	n.s.
T x N x ST x SS	1	61.0233	2.1600	n.s.
TP x N x ST x SS	1	215.2756	7.6199	**
T x TP x N	1	29.3372	1.0384	n.s.
T x TP x ST	1	396.6506	14.0398	**
T x TP x SS	1	.7998	.0283	n.s.
T x N x ST	1	116.5753	4.1263	*
T x N x SS	1	59.0989	2.0919	n.s.
T x ST x SS	1	252.0694	8.9222	**
TP x N x ST	1	199.5937	7.0648	**
TP x N x SS	1	143.6624	5.0851	*
TP x ST x SS	1	158.5452	5.6119	*
N x ST x SS	1	99.6419	3.5269	n.s.
T x TP	1	315.8323	11.1792	**
T x N	1	361.4402	12.7935	**
T x ST	1	159.8118	5.6567	*
T x SS	1	189.2330	6.6981	*
TP x N	1	88.5622	3.1347	n.s.
TP x ST	1	103.7779	3.6733	n.s.
TP x SS	1	79.5485	2.8157	n.s.
N x ST	1	134.0710	4.7456	*
N x SS	1	54.9288	1.9443	n.s.
ST x SS	1	24.2146	.8571	n.s.
ERROR	142	28.2519		

* $p < .05$
** $p < .01$

TABLE 3

Mean Amount of Attention Given by

Teachers to High and Low Need

Students - Post Measure

	High Need Students	Low Need Students
Experimental	7.4036 ←	3.3756
Control	3.8344	5.6680

$p < .05$

Table 4

Summary of the t-test Analysis Comparing
Mean Percent of Inattention on Retention Measure

Group	Male Teacher				Female Teacher			
	N	$\bar{X}$	σ			σ		
E	4	20.830	8.016	.252	11	12.948	10.502	.703
C	2	24.855	21.828		4	16.612	8.278	

No significant difference

TABLE 5

Analysis of Variance - Amount of Attention Given by Teacher to High and Low Need Students - Retention Measure

Source	df	MS	F	P
Treatment (T)	1	98.2616	5.0669	*
Need of Student (N)	1	152.2872	7.8528	**
Elem/Sec Teacher (ES)	1	445.1201	22.9529	**
Sex of Student (SS)	1	.3790	.0195	n.s.
T x N x ES x SS	1	.1914	.0099	n.s.
T x N x ES	1	41.4764	2.1388	n.s.
T x N x SS	1	2.6265	.1354	n.s.
T x ES x SS	1	12.1784	.6280	n.s.
N x ES x SS	1	4.2425	.2188	n.s.
T x N	1	94.5217	4.8741	*
T x ES	1	28.2146	1.4549	n.s.
N x ES	1	453.1477	23.3688	**
T x SS	1	1.6813	.0867	n.s.
N x SS	1	40.1902	2.0724	n.s.
ES x SS	1	47.3070	2.4394	n.s.
ERROR	207	19.3928		

* $p < .05$
** $p < .01$

TABLE 6

Mean Amount of Attention Given by

Teachers to High and Low Need

Students - Retention Measure

	High Need Students	Low Need Students
Experimental	6.0486	3.8402
Control	3.6133	3.3293

$p < .10$

Table 7

Mean Amount of Attention Given by
Teachers to High and Low Need Students

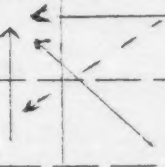
	Male Teachers	Female Teachers
High Need Students	4.5612	7.6161
Low Need Students	4.8053	3.7276

$p < .01$

Table 8

Mean Amount of Attention Given by
Elementary and Secondary Teachers to
High and Low Students - Retention Measure

	Elementary Teachers	Secondary Teachers
High Need Students	8.4769	1.9983
Low Need Students	4.2315	3.2317



$p<.05$ - - - -

$p<.01$ _____

Table 9

Amount of Attention Given to Students
by Teachers with No Experience and Those
with One Year Experience - Retention Measure

	Teachers with no Experience	Teachers with one Year of Experience
Experimental Teachers	6.0799	1.9391
Control Teachers	3.6474	2.9719

$p < .05$